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(54) **Printing unit**

(57) A printing unit having a receptacle for a toner cassette (4), at least one first gearing projection (1) being provided for engaging in the toner cassette (4), and the first gearing projection (1) being situated so it is rotatable around a first drive axis (11) and displaceable along the first drive axis (11), and the first gearing projection (1)

being provided for transmitting a first drive torque to the toner cassette (4), it is suggested that a coupling plate (3) be situated so it is displaceable in a movement direction (33) perpendicular to the first drive axis (11), and the coupling plate (3) comprise least one first ramp element (31) working together with the first gearing projection (1).

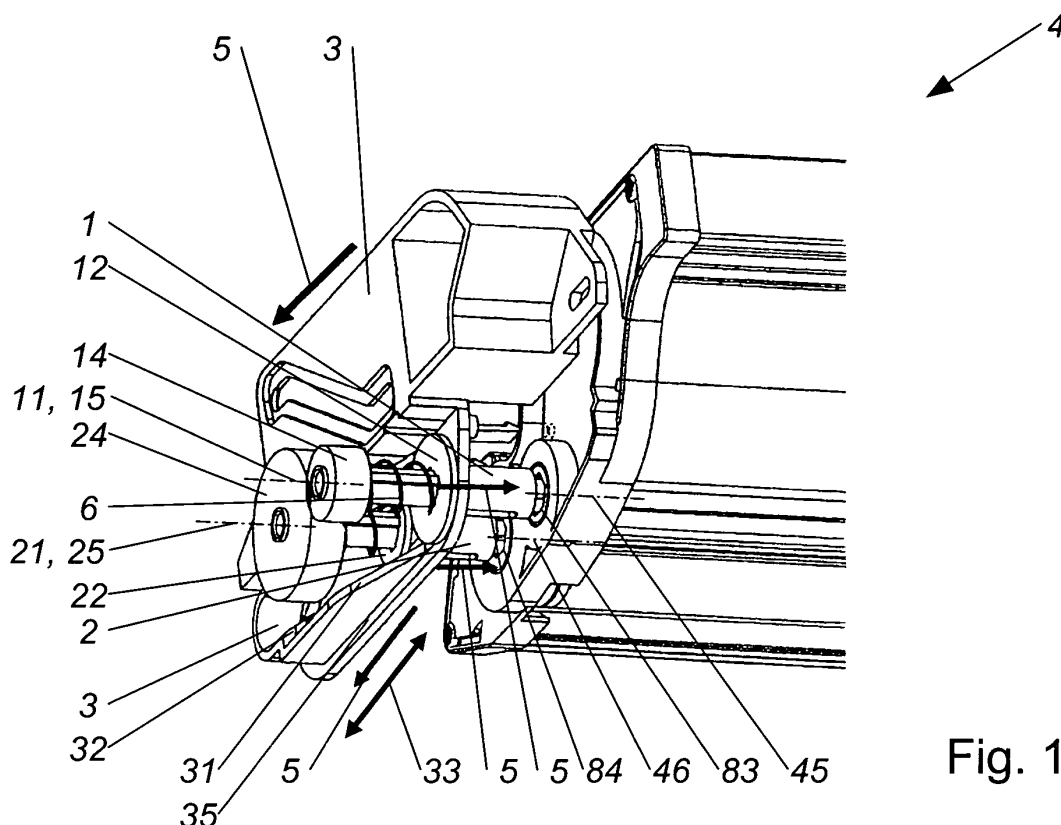


Fig. 1

Description

[0001] The invention relates to a printing unit according to the preamble of Claim 1.

[0002] Printing units are known, for example, for home printers, office printers, network printers, copiers, and/or fax machines, for printing receiving media, in particular sheets, sheets of paper, textiles, and/or films. A toner cassette is situated in the printing unit for printing a receiving medium. The toner cassette contains printing particles, which are melted when printing a page of the receiving medium and are brought into contact with the page to be printed, the molten printing particle bonding to the material of the receiving medium. If the printing unit comprises a laser, it may also be referred to as a laser printing unit.

[0003] Upon insertion into the printing unit, the toner cassette is coupled to the printing unit and thus operationally linked thereto, and is decoupled upon removal from the printing unit and the operational link is thus disengaged. The operational link is the mechanical connection between a drive of the printing unit and the toner cassette. Torques and rotational movements may be transmitted via the operational link, by which the toner cassette may be driven in operation of the printing unit.

[0004] This has the disadvantage that the reliable coupling and decoupling of the operational link between the toner cassette and the printing unit is difficult, multiple parts movable in relation to one another often being situated in the printing unit for this purpose, and the space required and the mechanical demands on the parts movable in relation to one another for coupling and decoupling the operational link between the toner cassette and the printing unit being high.

[0005] The object of the invention is therefore to specify a printing unit of the type cited at the beginning, using which the cited disadvantages may be avoided and using which a toner cassette may be operationally linked easily and reliably, the number of parts movable in relation to one another for coupling and decoupling, the mechanical strain of the parts movable in relation to one another upon coupling and decoupling, and the space required for the coupling and decoupling of the toner cassette to the printing unit being able to be low.

[0006] This is achieved according to the invention by the features of Claim 1.

[0007] It is advantageous that the coupling plate and the first gearing projection are only displaced, i.e., only moved linearly. The advantage thus also results that the production and the disengagement of the operational link of the toner cassette to the printing unit, in particular with a drive of the printing unit, may be performed easily and reliably, and little space is required for displacing the coupling plate and the first gearing projection.

[0008] In particular, the mechanical strain of the coupling plate and the first gearing projection, which are moved in relation to one another, is also low, bending stresses of the coupling plate and the first gearing pro-

jection being able to be avoided. The coupling plate and the first gearing projection may thus be implemented simply and cost-effectively.

[0009] The advantage thus results that the coupling plate is implemented as movable along the drive axis using a movement perpendicular to the movement direction of the first gearing projection. Through the ramp element, the linear movement of the first gearing projection may be caused using the linear movement of the coupling plate, the space required for the coupling plate being able to be low due to the linear movement of the coupling plate. It is advantageous that the coupling plate may be situated and displaced essentially parallel to a housing outside wall of a housing of the printing unit. The mounting and the - at least two-dimensional - positional fixing of the coupling plate may thus be performed easily, cost-effectively, and in a space-saving manner.

[0010] It is also advantageous that the ramp element may be implemented having a predefinable inclination to the movement direction of the coupling plate. A transmission ratio of the displacement velocity of the coupling plate to the displacement velocity of the first gearing projection may advantageously be predefined via the inclination. The installation space conditions and the spatial conditions in the printing device may thus be dealt with individually, this type of production of the operational link between the toner cassette and the printing unit being applicable for many different printer models.

[0011] Furthermore, the invention relates to a method for decoupling a toner cassette in a printing unit according to the preamble of Claim 11.

[0012] A further object of the invention is therefore to specify a method for decoupling a toner cassette in a printing unit, using which the disadvantages cited at the beginning may be avoided, using which the number of parts movable in relation to one another for coupling and decoupling, the mechanical strain of the parts movable in relation to one another during coupling and decoupling, and the space required for coupling and decoupling the toner cassette with the printing unit may be low.

[0013] This is achieved according to the invention by the features of Claim 11.

[0014] The subclaims, which simultaneously form a part of the description like Claims 1 and 11, relate to further advantageous embodiments of the invention.

[0015] In addition to the first gearing projection, advantageously, at least one second gearing projection may be situated so it is rotatable around a second drive axis and displaceable along the second drive axis, and the second gearing projection is provided for transmitting a second drive torque to the toner cassette. Two drive torques may thus be transmitted into the toner cassette. In particular, the first gearing projection and the second gearing projection may rotate at different speeds, a transmission and/or a gear in the toner cassette being able to be dispensed with, because of which the toner cassette is producible especially cost-effectively.

[0016] In this context, the coupling plate may advan-

tageously comprise a second ramp element working together with the second gearing projection. The second gearing projection may thus be operationally linked to the toner cassette, i.e., coupled, and the operational link disengaged, i.e. decoupled, using the same simple, cost-effective, space-saving means and at low mechanical strain.

[0017] The invention is explained in greater detail with reference to the appended drawings, in which preferred embodiments are shown solely as examples. In the figures:

Figure 1 shows a part of a toner cassette, a coupling plate, a first gearing projection, and a second gearing projection of a printing unit of a first preferred embodiment in axonometric illustration, the first gearing projection and the second gearing projection being coupled, i.e., operationally linked, to the toner cassette;

Figure 2 shows the parts according to the first preferred embodiment from Figure 1 in outline, the first gearing projection and the second gearing projection being coupled to the toner cassette;

Figure 3 shows the part of the toner cassette, the coupling plate, the first gearing projection, and the second gearing projection of the printing unit of the first preferred embodiment in axonometric illustration, the first gearing projection and the second gearing projection being decoupled from the toner cassette, i.e., not operationally linked;

Figure 4 shows the parts according to the first preferred embodiment from Figure 3 in outline, the first gearing projection and the second gearing projection being decoupled from the toner cassette, i.e., not operationally linked;

Figure 5 shows a part of the toner cassette, the first gearing projection, the second gearing projection, and a driver of the printing unit of a second preferred embodiment in axonometric illustration, the first gearing projection and the second gearing projection being decoupled from the toner cassette, i.e., not operationally linked;

Figure 6 shows the parts according to the second preferred embodiment from Figure 5 in outline, the first gearing projection and the second gearing projection being coupled, i.e., operationally linked, to the toner cassette; and

Figure 7 shows the parts according to the second preferred embodiment from Figure 5 in outline, the first gearing projection being coupled to the toner cassette and the second gearing projection being decoupled from the toner cassette.

[0018] Figures 1 through 7 show a part of a toner cassette and parts of a printing unit having a receptacle for a toner cassette 4, at least one first gearing projection 1 being provided to engage in the toner cassette 4, and the first gearing projection 1 being situated so it is rotatable around a first drive axis 11 and displaceable along the first drive axis 11, and the first gearing projection 1 being provided for transmitting a first drive torque to the toner cassette 4, a coupling plate 3 being situated so it is displaceable in a movement direction 33 perpendicular to the first drive axis 11, and the coupling plate 3 comprising at least one first ramp element 31 working together with the first gearing projection 1.

[0019] The advantages and advantageous effects cited at the beginning may thus be made possible easily and cost-effectively.

[0020] The printing unit may be implemented as a laser printer, as an office printer, as a home printer, as a multifunction printer, as a receipt printer, as a label printer, as a fax machine, and/or as a copier.

[0021] The printing unit may be implemented to be operationally linked to one or more toner cassettes 4, and for grayscale printing or for color printing. Because the printing unit typically comprises a laser unit, the printing unit may also be referred to as a laser printing unit.

[0022] The toner cassette 4 comprises printing particles in particular, which are transferred to the receiving medium when pressed onto a receiving medium and may be implemented as consumable material, i.e., for regular replacement.

[0023] The first gearing projection 1 is implemented to engage in the toner cassette 4 of the printing unit.

[0024] The first gearing projection 1 may particularly be provided to drive a xerographic system in the toner cassette 4, comprising a so-called organic photo conductor OPC, which is charged to a pre-definable surface potential by a charge roller.

[0025] The linear displacement of the first gearing projection 1 may be caused using the linear movement of the coupling plate 3 by the first ramp element 31.

[0026] In particular - as provided in the preferred first embodiment shown - in addition to the first gearing projection 1, at least one second gearing projection 2 may be situated so it is rotatable around a second drive axis 21 and displaceable along the second drive axis 21, and the second gearing projection 2 being provided for transmitting a second drive torque to the toner cassette 4. Two different drive torques may thus be transmitted to the toner cassette 4. Two different rotational velocities may thus be transmitted simultaneously to the toner cassette 4. It is advantageous that internal toner cassette gearing may be implemented simply and cost-effectively, or internal toner cassette gearing may be dispensed with. The toner cassette 4 may thus be implemented as small, to conserve installation space, to conserve weight, simply, having a small number of movable parts, and cost-effectively.

[0027] The second gearing projection 2 is implement-

ed to engage in the toner cassette 4 of the printing unit.

[0028] The second gearing projection 2 may particularly be provided for driving a transfer roller, which transfers electrostatically charged toner to the receiving medium, typically to a sheet of paper.

[0029] In this context, the coupling plate 3 may preferably comprise a second ramp element 32 working together with the second gearing projection 2. The linear displacement of the second gearing projection 2 may be caused by the second ramp element 32 using the linear movement of the coupling plate 3.

[0030] Coupling and decoupling of the first gearing projection 1 and/or the second gearing projection 2 with the toner cassette 4 may thus be ensured by essentially solely linear movements.

[0031] It is advantageous that the coupling plate 3 may be situated and displaced essentially parallel to a housing outside wall of a housing of the printing unit. The mounting and the - at least two-dimensional - positional fixing of the coupling plate 3, the first gearing projection 1, and the second gearing projection 2 may thus be performed easily, cost-effectively, and in a space-saving manner.

[0032] It is also advantageous that the coupling plate 3 and the first gearing projection 1 and/or the second gearing projection 2 only have to be displaced, i.e., only moved essentially linearly. The advantage thus results that the production and the disengagement of the operational link of the toner cassette 4 to the printing unit may be performed easily and reliably, the space required for displacing the coupling plate 3, the first gearing projection 1, and/or the second gearing projection 2 being able to be small.

[0033] It is advantageous in this context that the mechanical strain of these parts moved in relation to one another may be small and bending stresses may be essentially avoided. The coupling plate and the first gearing projection may thus be implemented simply and cost-effectively and the printing unit may have a high stability and a high durability.

[0034] It is also advantageous that the first ramp element 31 and/or the second ramp element 32 may be implemented having a predefinable inclination to a movement direction 33 and to a base plate 35 of the coupling plate 3, the base plate 35 being able to be implemented essentially parallel to the movement direction 33. A transmission ratio of the displacement velocity of the coupling plate to the displacement velocity of the first gearing projection 1 and/or the second gearing projection 2 may advantageously be predefined via the inclination.

[0035] In particular, the inclination of the first ramp element 31 may be implemented differently from the inclination of the second ramp element 32. In this manner, at a predefinable displacement velocity of the coupling plate 3, the displacement velocity of the first gearing projection 1 and the displacement velocity of the second gearing projection 2 may be implemented differently.

[0036] Figure 1 and Figure 2 show the toner cassette 4 and the first gearing projection 1 as well as the second

gearing projection 2 of the printing unit of the first preferred embodiment in a coupled position 5, the toner cassette being operationally linked via the first gearing projection 1 and via the second gearing projection 2 to a drive of the printing unit, and, in the coupled position 5, the first gearing projection 1, the second gearing projection 2, and the coupling plate 3 being located in a position essentially as far as possible in the direction of the coupled position 5.

[0037] Figure 3 and Figure 4 show the toner cassette and the first gearing projection and the second gearing projection of the printing unit of the first preferred embodiment in a decoupled position 6, the toner cassette not being operationally linked to the drive, and, in the decoupled position 6, the first gearing projection 1, the second gearing projection 2, and the coupling plate 3 being located in a position essentially as far as possible in the direction of the decoupled position 6.

[0038] According to the first preferred embodiment of the printing unit, the first gearing projection 1 and the second gearing projection 2 are operationally linked rotationally fixed to the drive of the printing unit.

[0039] In a further advantageous embodiment of the printing unit, rotation equalization elements to compensate for drive oscillations and/or to damp noise may be situated between the drive and the first gearing projection 1 and/or the second gearing projection 2.

[0040] In particular, the first gearing projection 1 may be situated rotationally fixed on a first rotational axis 15 of a first gearing gearwheel 14 and may be mounted so it is displaceable in relation to the first gearing gearwheel 14, and/or the second gearing projection 2 may be situated rotationally fixed on a second rotational axis 25 of a second gearing gearwheel 24 and may be mounted so it is displaceable in relation to the second gearing gearwheel 24. The first gearing projection 1 and the second gearing projection 2 may thus be driven especially simply.

[0041] In particular - as provided according to the first preferred embodiment - the first rotational axis 15 and the first drive axis 11 may be coincident and/or the second rotational axis 25 and the second drive axis 21 may be coincident, by which the torques may be introduced into the toner cassette 4 especially simply and especially conservatively of installation space.

[0042] The first gearing gearwheel 14 and the second gearing gearwheel 24 preferably engage in one another, by which these two gearwheels 14, 24 are operationally linked to one another, in particular, at a predetermined rotational velocity of the drive to drive the first gearing projection 1 and the second gearing projection 2, the first gearing projection 1 and the second gearing projection 2 may rotate at different rotational velocities.

[0043] The first gearing projection 1 and the second gearing projection 2 may thus transmit two different rotational velocities to the toner cassette 4, by which further gears may be avoided in the toner cassette 4, by which the toner cassette may be implemented having small di-

mensions, to conserve installation space, at low weight, and having a small number of movable parts, and particularly may be produced cost-effectively.

[0044] The first gearing projection 1 and the second gearing projection 2 may thus be driven by only one shared printer-side drive, the printer-side drive only being operationally linked either to the first gearing gearwheel 14 or to the second gearing gearwheel 24, in particular permanently and rotationally fixed, preferably non-removably.

[0045] According to a further preferred embodiment, an intermediate gearwheel may be situated between the first gearing gearwheel 14 and the second gearing gearwheel 24. The first gearing projection 1 and the second gearing projection may thus be moved in the same rotational direction.

[0046] The printing unit of the first preferred embodiment makes a method for decoupling the toner cassette 4 in the printing unit possible, the first gearing projection 1 being situated so it is rotatable around the first drive axis 11 and displaceable along the first drive axis 11, and engaging in the toner cassette 4 in a coupled state, the first gearing projection 1 being displaced along the first drive axis 11 using a first ramp element 31 working together with a coupling plate 3, the coupling plate 3 being displaced in a movement direction 33 perpendicular to the first drive axis 11. Using this method, the above-mentioned advantages and the advantages cited at the beginning may be ensured easily and reliably.

[0047] In this method, the first gearing projection 1 may preferably be displaced from the engagement with the toner cassette 4 at a chronologically predefinable interval to a second gearing projection 2, the second gearing projection 2 being situated so it is rotatable around the second drive axis 22 and displaceable along the second drive axis 22 and engaging in the toner cassette 4 in the coupled state. Mechanical strain peaks on the toner cassette 4 and the coupling plate 3 may thus be reduced, and the curve of the force expenditure to displace the coupling plate 3 may be linearized. The noise development during coupling and decoupling may thus also be slight, which is perceived as pleasant to a user.

[0048] Preferably, the first drive axis 11 may be essentially parallel to the second drive axis 21. This allows the space-saving and force-conserving parallel torque introduction into the toner cassette 4.

[0049] In particular in this context, the movement direction 33 of the coupling plate 3 may be parallel to a plane spanned by the first drive axis 11 and the second drive axis 21. The coupling and decoupling of the first gearing projection 1 and/or the second gearing projection 2 may thus essentially be performed using only a transverse movement of the coupling plate 3. The low mechanical strain of the coupling plate 3, the first gearing projection 1, and the second gearing projection 2 may thus be ensured. The situation of the coupling plate 3 to conserve installation space and the clearances necessary for coupling and decoupling in the printing unit may

thus also be ensured, because of which the printer may be small and especially suitable for mobile applications, in particular as a printer for employees outside the office.

[0050] Especially preferably - as provided according to the first preferred embodiment - the first ramp element 31 may work together with a first support 12 of the first gearing projection 1 and the second ramp element 32 may work together with a second support 22 of the second gearing projection 2, the first ramp element 31 may have a central recess 34 in the first movement direction 33, the second support 22 may be received by the recess 34 upon the movement of the coupling plate 3, and the second ramp element 32 may be situated at least regionally in the recess 34. The first gearing projection 1 and the second gearing projection 2 may be moved into the recess 34, the first support 12 and/or the second support 22 being able to rest and be guided on two lateral boundaries of the recess 34. The advantage thus results that the first gearing projection 1 and/or the second gearing projection 2 may be coupled and decoupled essentially without bending stress, because of which the mechanical strain of the coupling plate 3, the first gearing projection 1, and/or the second gearing projection 2 may be slight, and the coupling and decoupling may be performed easily and with low force expenditure.

[0051] The first ramp element 31 and/or the second ramp element 32 may preferably comprise a first area having predefinable slope in relation to the base plate 35 and an essentially planar area parallel and at a distance to the base plate 35.

[0052] The coupling and decoupling may be performed in a predetermined manner by the area having predefinable slope. The decoupled position of the first gearing projection 1 and/or the second gearing projection 2 may be ensured by the essentially planar area parallel and at a distance to the base plate 35.

[0053] The recess 34 may be implemented as an oblong slot or as an oblong hole - as provided according to the first preferred embodiment.

[0054] The coupling plate 3 may be operationally linked to a housing cover, for example, the movement of the coupling plate 3 being operationally linked to the movement of the housing cover. Upon opening and closing of the housing cover - in particular by the user and in particular to check or change the toner - the coupling plate 3 may be displaced by a predefinable amount in the movement direction 33 of the coupling plate 3. The operational link of the housing cover and the coupling plate 3 may be performed easily using a lever arm or using an arm mechanism by the transverse displacement of the coupling plate 3.

[0055] The forces occurring upon displacement of the coupling plate 3 may be small, so that the opening and closing of the housing cover is not perceived as unpleasantly heavy to the user. Rather, the constant force upon displacement of the coupling plate 3 may be perceived by the user as damping of the housing cover, because of which the opening and closing of the housing cover

may ensure a solid, stable, and valuable impression to the user. This advantageous effect of value may particularly be ensured with differing inclination of the first ramp element 31 to the inclination of the second ramp element 32.

[0056] The first gearing projection 1 and the second gearing projection 2 may advantageously be provided for formfitting engagement in the toner cassette 4. This formfitting engagement may be implemented according to the first preferred embodiment of the engagement shown in Figure 1 through Figure 4. The first engagement 81 on the gearing projection side and the second engagement 82 on the gearing projection side, which are implemented as hexagons, as well as the first engagement 83 on the toner cassette side and the second engagement 84 on the toner cassette side, which are implemented as hexagon sockets complementary to the hexagons, are shown in Figure 1 through Figure 4.

[0057] Alternatively, the hexagon on the gearing projection side may also be implemented as a rectangle, as a cross, as a tongue, as a groove, as a hexagon socket, or as a rectangle socket, and the hexagon socket on the toner cassette side may be implemented as correspondingly complementary. This allows the especially reliable operational link of the engagement and the simple coupling and decoupling of the toner cassette 4 with the printing unit.

[0058] In particular, the first gearing projection 1 and/or the second gearing projection 2 may be pretensioned in the direction of a coupling location 5. The pretension may particularly be achieved using a pretension element 7, which may be implemented in particular as a coiled spring. The location of the first gearing projection 1 and/or the second gearing projection 2 may thus be predetermined especially reliably, by which the coupling and decoupling of the toner cassette 4 with the printing unit and the operational link upon formfitting engagement may be reliably ensured.

[0059] Through the implementation of the recess 34 as an oblong hole, in a further preferred embodiment, more than two gearing projections may be situated essentially parallel adjacent to one another. In this manner, a toner cassette 4 may also be driven using three, four, or more gearing projections, by which the toner cassette 4 may be implemented entirely without internal gears, transmissions, and/or gearwheels.

[0060] Figure 5 shows a part of the toner cassette 4, the first gearing projection 1, the second gearing projection 2, and a driver 85 of the printing unit of a second preferred embodiment in axonometric illustration, the first gearing projection 1 and the second gearing projection 2 being decoupled from the toner cassette 4, i.e., not operationally linked.

[0061] Figure 6 shows the parts of the printing unit of the second preferred embodiment from Figure 5, the first gearing projection 1 and the second gearing projection 2 being coupled to the toner cassette 4, i.e., operationally linked.

[0062] Figure 7 shows the parts of the printing unit of the second preferred embodiment from Figure 5, the first gearing projection 1 being coupled to the toner cassette and the second gearing projection 2 being decoupled from the toner cassette 4.

[0063] In this second preferred embodiment of the printing unit, the first gearing projection 1 and the second gearing projection 2 are operationally linked using the driver 85, the second gearing projection 2 being able to be displaced using the driver 85 from the engagement with the toner cassette 4 upon displacement of the first gearing projection 1 from the engagement with the toner cassette 4.

[0064] The driver 85 of the second preferred embodiment of the printing unit may advantageously prevent the second gearing projection 2 from being coupled to the toner cassette 4 when the first gearing projection 1 is decoupled from the toner cassette 4. In case of error in which the first gearing projection 4 is decoupled from the toner cassette 4, an error recognizable to the user may thus occur.

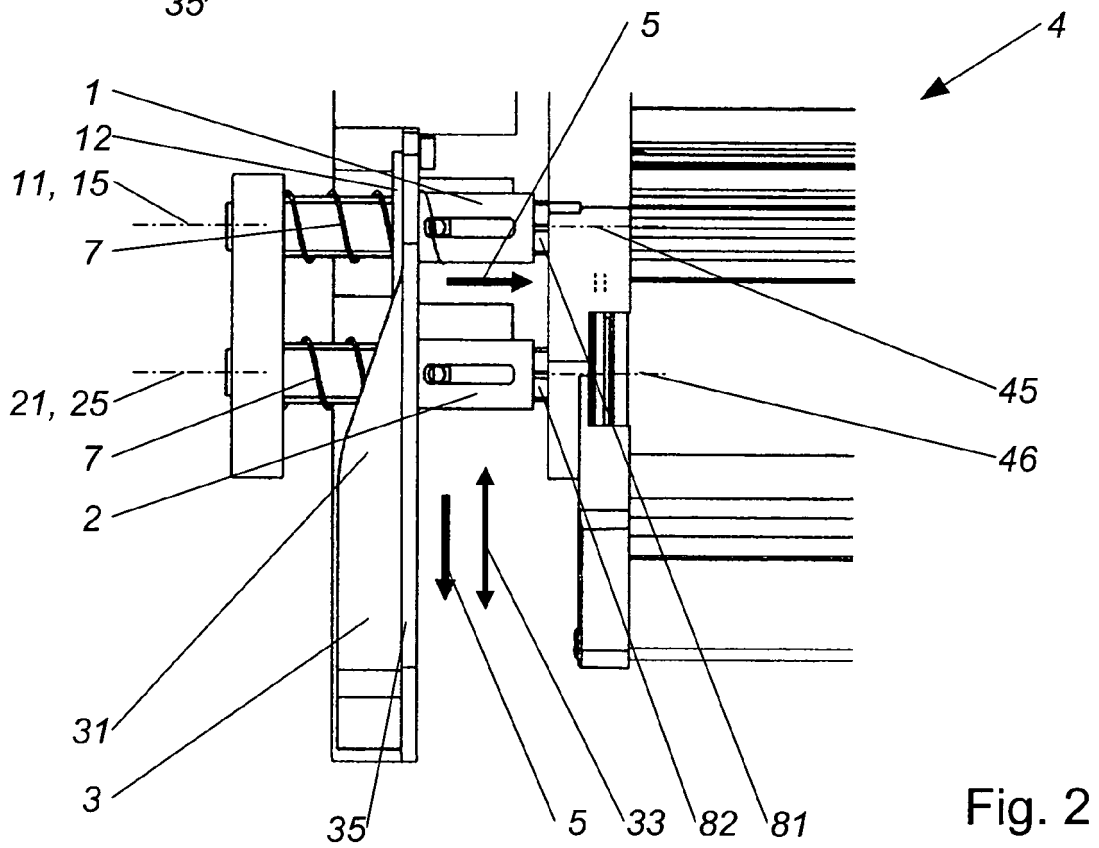
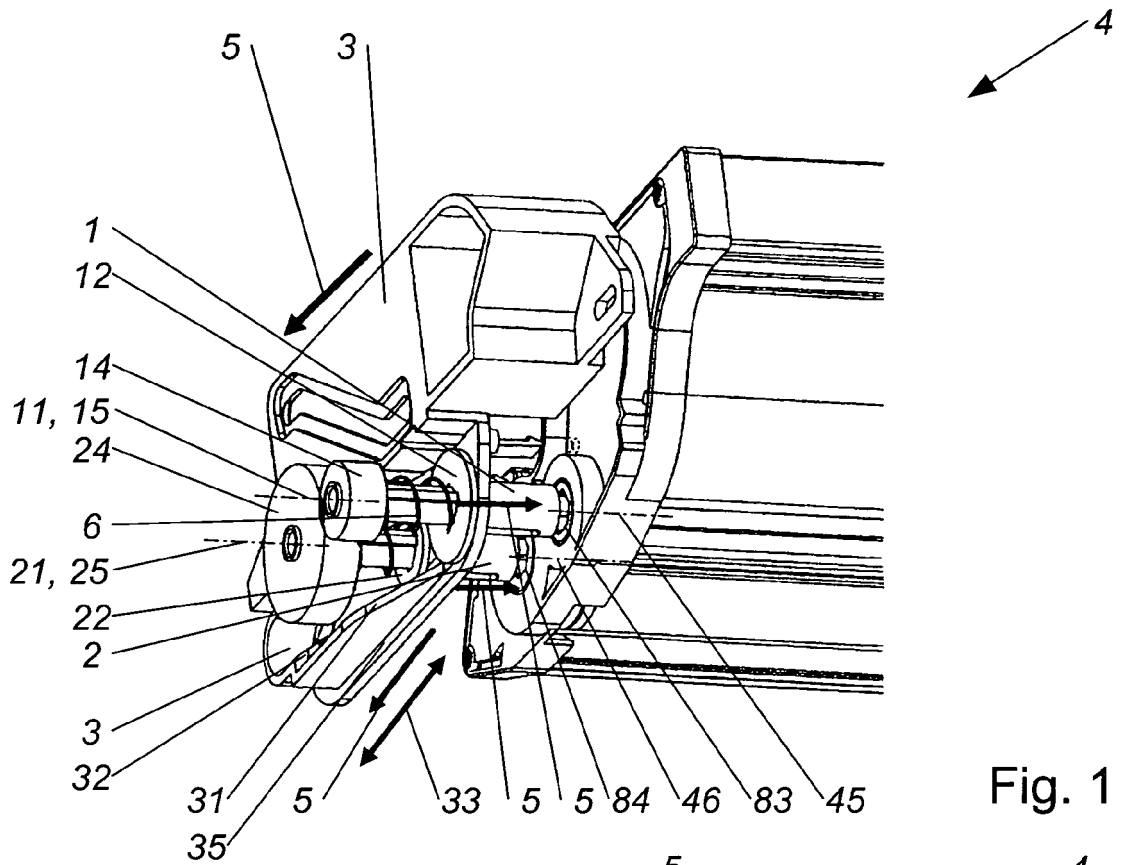
[0065] This error may advantageously be revealed as a paper jam, in particular in this context, the first gearing projection 1 being able to drive the charge roller of the toner cassette 4 and the second gearing projection 2 being able to drive the transfer roller of the toner cassette 4. It is advantageous that the printout of an unprinted page, in which the printed information, in particular the fax information, would be lost, may be prevented. It is advantageous that legal requirements, in particular if the printing unit is used as a fax machine, may be corresponded to.

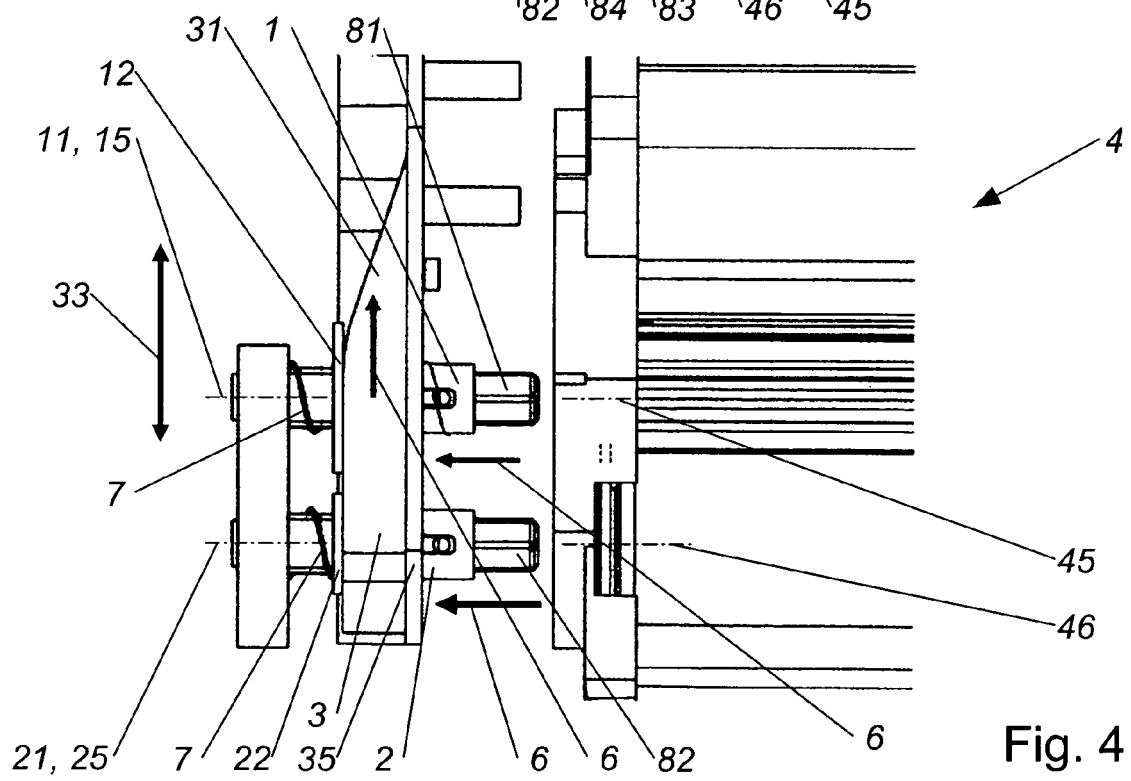
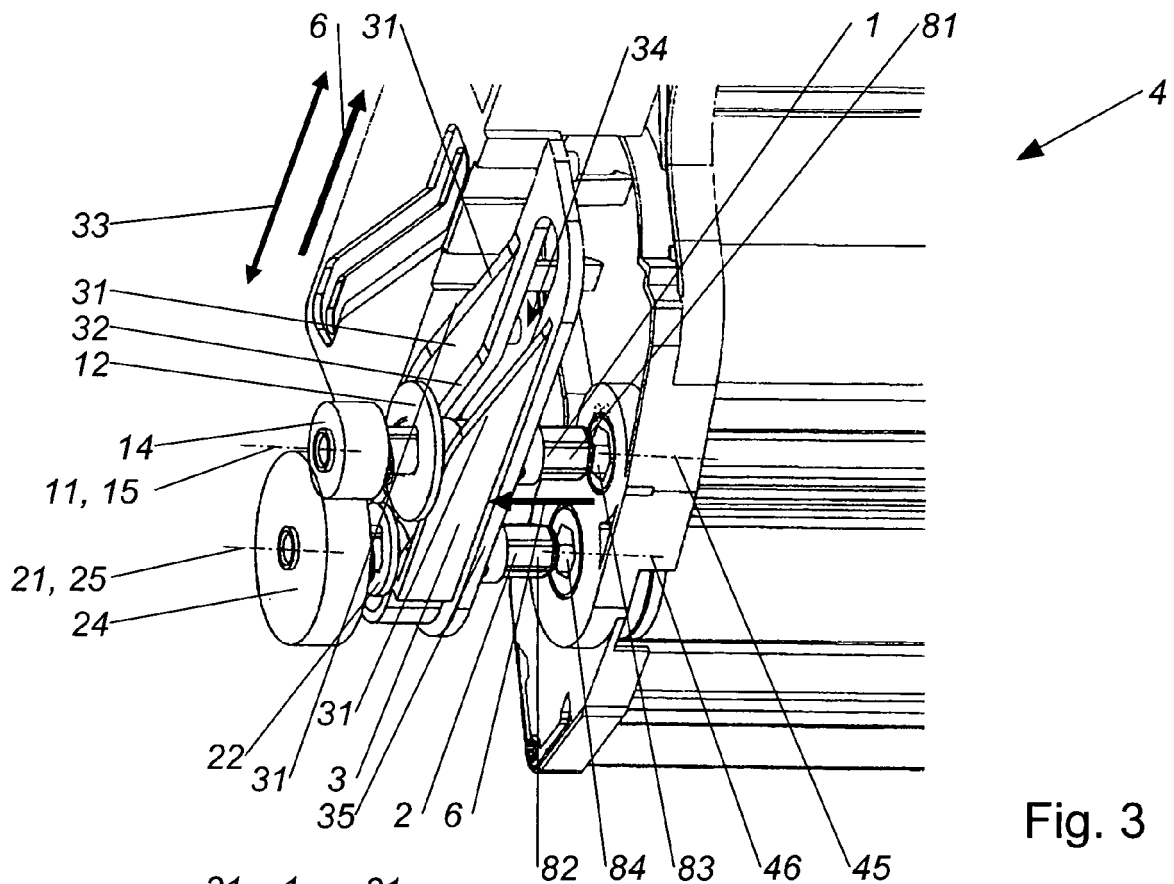
[0066] Further embodiments according to the invention only have a part of the described features, every feature combination being able to be provided, in particular also of various described embodiments.

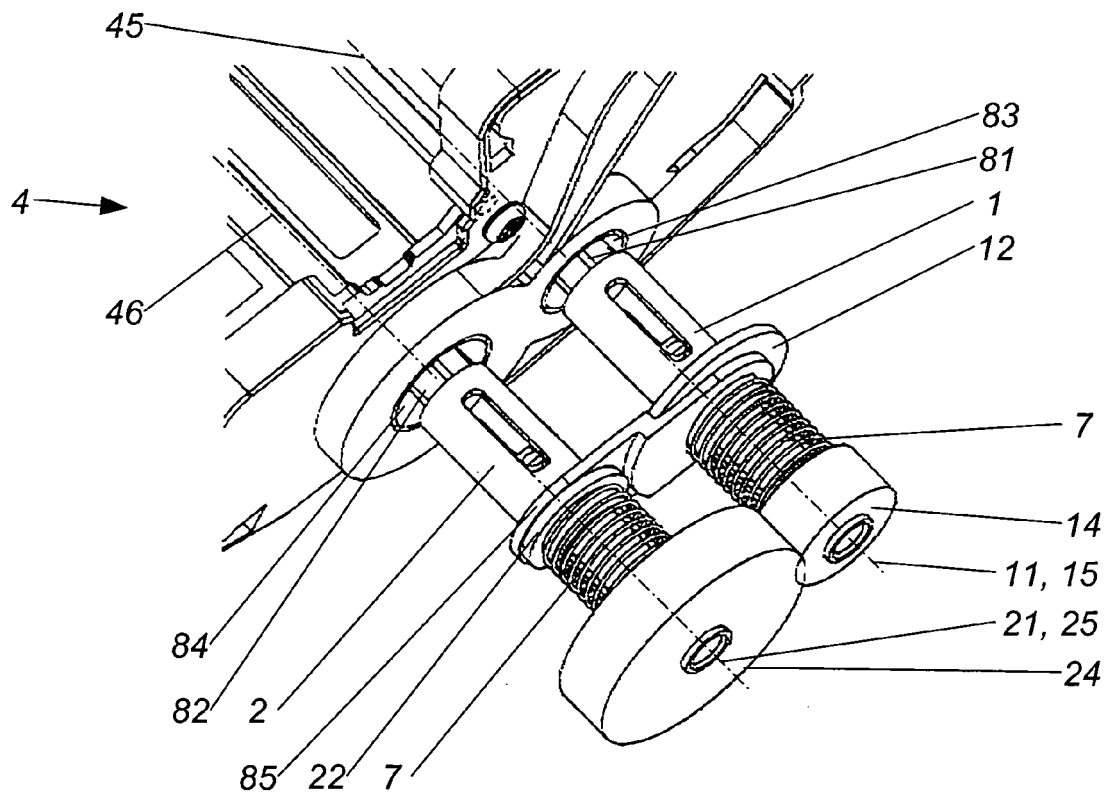
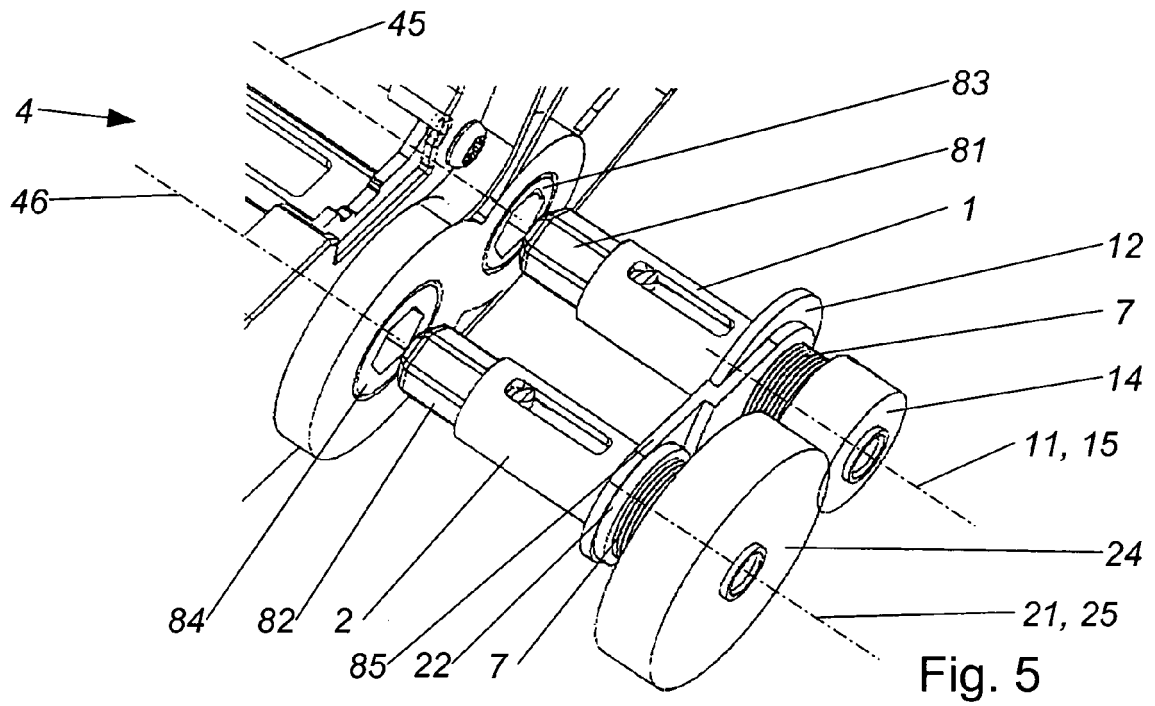
Claims

1. A printing unit having a receptacle for a toner cassette (4), at least one first gearing projection (1) being provided to engage in the toner cassette (4), and the first gearing projection (1) being situated so it is rotatable around a first drive axis (11) and displaceable along the first drive axis (11), and the first gearing projection (1) being provided to transmit a first drive torque to the toner cassette (4), **characterized in that** a coupling plate (3) is situated so it is displaceable in a movement direction (33) perpendicularly to the first drive axis (11), and the coupling plate (3) comprises at least one first ramp element (31) working together with the first gearing projection (1).
2. The printing unit according to Claim 1, **characterized in that**, in addition to the first gearing projection (1), at least one second gearing projection (2) is situated so it is rotatable around a second drive axis

- (21) and displaceable along the second drive axis (21), and the second gearing projection (2) is provided for transmitting a second drive torque to the toner cassette (4).
3. The printing unit according to Claim 2, **characterized in that** the coupling plate (3) comprises a second ramp element (32) working together with the second gearing projection (2).
 4. The printing unit according to Claim 2 or 3, **characterized in that** the first drive axis (11) is essentially parallel to the second drive axis (21).
 5. The printing unit according to Claim 4, **characterized in that** the movement direction (33) is parallel to a plane spanned by the first drive axis (11) and the second drive axis (21).
 6. The printing unit according to one of Claims 3 through 5, **characterized in that** the first ramp element (31) works together with a first support (12) of the first gearing projection (1) and the second ramp element (32) works together with a second support (22) of the second gearing projection (2), the first ramp element (31) has a central recess (34) in the first movement direction (33), the second support (22) is received by the recess (34) during the movement of the coupling plate (3), and the second ramp element (32) is at least regionally situated in the recess (34).
 7. The printing unit according to one of Claims 2 through 6, **characterized in that** the first gearing projection (1) and the second gearing projection (2) are provided for formfitting engagement in the toner cassette (4).
 8. The printing unit according to one of Claims 2 through 7, **characterized in that** the first gearing projection (1) is situated rotationally fixed on a first rotational axis of a first gearing gearwheel (14) and is mounted so it is displaceable in relation to the first gearing gearwheel (14) and/or the second gearing projection (2) is situated rotationally fixed on a second rotational axis of a second gearing gearwheel (24) and is mounted so it is displaceable in relation to the second gearing gearwheel (24).
 9. The printing unit according to one of Claims 1 through 8, **characterized in that** the first gearing projection (1) and/or the second gearing projection (2) are pre-tensioned in the direction of a coupling position (5).
 10. The printing unit according to one of Claims 1 through 9, **characterized in that** the movement of the coupling plate (3) is operationally linked to the movement of a housing cover.
 11. The printing unit according to one of Claims 1 through 10, **characterized in that** the first gearing projection (1) and the second gearing projection (2) are operationally linked using a driver (85).
 12. A method for decoupling a toner cassette (4) in a printing unit, a first gearing projection (1) being situated so it is rotatable around a first drive axis (11) and displaceable along the first drive axis (11) and engaging in the toner cassette (4) in a coupled state, **characterized in that** the first gearing projection (1) is displaced using a first ramp element (31) working together with a coupling plate (3) along the first drive axis (11), the coupling plate (3) being displaced in a movement direction (33) perpendicular to the first drive axis (11).
 13. The method according to Claim 12, **characterized in that** the first gearing projection (1) is displaced from the engagement with the toner cassette (4) at a chronologically predefmable interval to a second gearing projection (2), the second gearing projection (2) being situated so it is rotatable around a second drive axis (22) and displaceable along the second drive axis (22) and engaging in the toner cassette (4) in the coupled state.
 14. The method according to Claim 12 or 13, **characterized in that** the second gearing projection (2) is displaced from the engagement with the toner cassette (4) using a driver (85) upon displacement of the first gearing projection (1) from the engagement with the toner cassette (4).







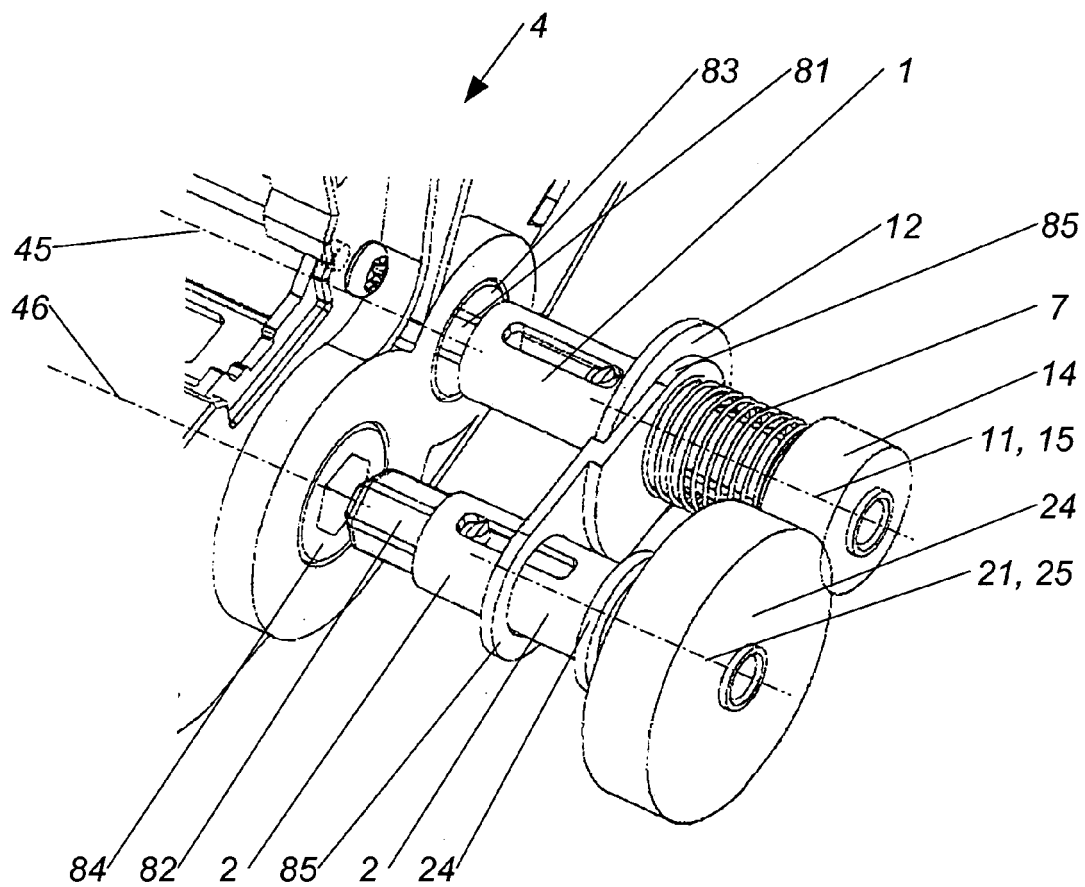


Fig. 7



EUROPEAN SEARCH REPORT

Application Number
EP 08 29 1266

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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